APPENDIX D

RIPARIAN/AQUATIC STANDARD AND GUIDELINES

DESCRIPTION – RIPARIAN RESERVE WIDTHS

Riparian Reserves are specified for five categories of streams or waterbodies as follows:

- **Fish-bearing streams** - Riparian Reserves consist of the stream and the area on each side of the stream extending from the edges of the active stream channel to the top of the inner gorge, or to the outer edges of the 100-year floodplain, or to the outer edges of riparian vegetation, or to a distance equal to the height of two site-potential trees, or 300 feet slope distance (600 feet total, including both sides of the stream channel), whichever is greatest.
- **Permanently flowing nonfish-bearing streams** - Riparian Reserves consist of the stream and the area on each side of the stream extending from the edges of the active stream channel to the top of the inner gorge, or to the outer edges of the 100-year floodplain, or to the outer edges of riparian vegetation, or to a distance equal to the height of one site-potential tree, or 150 feet slope distance (300 feet total, including both sides of the stream channel), whichever is greatest.
- **Constructed ponds and reservoirs, and wetlands greater than 1 acre** - Riparian Reserves consist of the body of water or wetland and: the area to the outer edges of the riparian vegetation, or to the extent of seasonally saturated soil, or the extent of unstable and potentially unstable areas, or to a distance equal to the height of one site-potential tree, or 150 feet slope distance from the edge of the wetland greater than 1 acre or the maximum pool elevation of constructed ponds and reservoirs, whichever is greatest.
- **Lakes and natural ponds** - Riparian Reserves consist of the body of water and: the area to the outer edges of the riparian vegetation, or to the extent of seasonally saturated soil, or to the extent of unstable and potentially unstable areas, or to a distance equal to the height of two site-potential trees, or 300 feet slope distance, whichever is greatest.
- **Seasonally flowing or intermittent streams, wetlands less than 1 acre, and unstable and potentially unstable areas** - This category applies to features with high variability in size and site-specific characteristics. At a minimum, the Riparian Reserves must include:
    - The extent of unstable and potentially unstable areas (including earthflows),
    - The stream channel and extend to the top of the inner gorge,
    - The stream channel or wetland and the area from the edges of the stream channel or wetland to the outer edges of the riparian vegetation, and
    - Extension from the edges of the stream channel to a distance equal to the height of one site-potential tree, or 100 feet slope distance, whichever is greatest.

A site-potential tree height is the average maximum height of the tallest dominant trees (200 years or older) for a given site class.

Intermittent streams are defined as any nonpermanent flowing drainage feature having a definable channel and evidence of annual scour or deposition. This includes what are sometimes referred to as ephemeral streams if they meet these two physical criteria.

TIMBER MANAGEMENT

TM-1. Prohibit timber harvest, including fuelwood cutting, in Riparian Reserves, except under the following conditions:

a. Where catastrophic events such as fire, flooding, wind, or insect damage result in degraded riparian conditions, allow forest health treatments and fuelwood cutting if required to attain Fisheries/Watershed Objectives objectives.

b. Allow forest health treatments (such as thinning over stocked and/or diseased stands) only when watershed analysis determines that present and future coarse woody debris needs are met and other Fisheries/Watershed Objectives objectives are not adversely affected.

c. Apply silvicultural practices for Riparian Reserves to control stocking, reestablish and manage stands, and acquire desired vegetation characteristics needed to attain Fisheries/Watershed Objectives objectives. For example, in the Mattole Basin consider riparian silviculture treatments to reduce hardwood canopy and to replant conifers to accelerate future large woody debris recruitment potential.

ROADS MANAGEMENT

RF-1. BLM will cooperate with other entities to achieve consistency in road design, operation, and maintenance necessary to attain Fisheries/Watershed Objectives objectives.

RF-2. For each existing or planned road, meet Fisheries/Watershed Objectives objectives by:

a. New roads are not allowed on west slope of KRNCA unless required for emergency purposes such as fire.

b. completing watershed analyses (including appropriate geotechnical analyses) prior to construction of new roads or landings in Riparian Reserves.

c. preparing road-specific maintenance plans for all roads in the KRNCA to minimize adverse impacts from roads.

d. All above activities will not occur during wet weather. BLM will inspect road conditions prior to initiating any routine road maintenance activity.

e. Heavy equipment operations will use all feasible techniques to prevent any sediment from entering a drainage system during operations. For example, operators will take precautions when

operating near drainages to keep surface materials out of the stream channel. Only operators who are informed of all applicable Standards and Guides and conditions of operation will be permitted to commence work. A BLM project inspector, or designee, will be onsite to insure proper procedures are followed.

f. Heavy equipment will be inspected daily by the BLM project inspector, or designee, to check for leaks. Equipment that may leak lubricants or fuels into drainages will not be used until leaks are repaired. Fuel trucks (if used) and/or re-fueling will be done outside of Riparian Reserves and stream crossings.

g. Vegetation trimming or removal conducted in Riparian Reserves will be completed in such a fashion as to not retard attainment of Fisheries/Watershed Objectives objectives. Specifically: 1) Downed woody material in Riparian Reserves will not be removed and will be moved only to the extent necessary to provide for safe road use. 2) Conifers exceeding three inches diameter will not be cut from Riparian Reserves unless it is absolutely necessary for safe use of the road segment. If a conifer exceeding three inches diameter must be cut, it may not be moved from the Riparian Reserve or stream corridor without review from a BLM fishery biologist or designee.

h. Water drafting will be conducted only at sites approved by BLM staff and will follow NMFS guidelines.

i. Mulching will be used, as necessary, to minimize sediment delivery from disturbed ground outside the active stream channel.

RF-3. Determine the influence of each road on the Fisheries/Watershed Objectives objectives through watershed analysis. BLM has completed several watershed analyses and has coordinated with MRC to inventory roads and to address road problems. Although much of the road work (decommissioning, closing, stabilizing) has been done, this program will continue and will be applied to other watersheds (untreated watersheds with smaller public land holdings and a few roads on the west side of the KRNCA) within the KRNCA. Meet Fisheries/Watershed Objectives objectives by:

a. reconstructing roads and associated drainage features that pose a substantial risk.

b. prioritizing reconstruction based on current and potential impact to riparian resources and the ecological value of the riparian resources affected.

c. closing and stabilizing, or obliterating and stabilizing roads based on the ongoing and potential effects to Fisheries/Watershed Objectives objectives and considering short-term and long-term transportation needs and required access through BLM lands to private inholdings.

RF-4. New culverts, bridges and other stream crossings shall be constructed, and existing culverts, bridges and other stream crossings determined to pose a substantial risk to riparian conditions will be improved, to accommodate at least the 100-year flood, including associated bedload and debris. Priority for upgrading will be based on the potential impact and the ecological value of the riparian resources

affected. Crossings will be constructed and maintained to prevent diversion of streamflow out of the channel and down the road in the event of crossing failure.

RF-5. Minimize sediment delivery to streams from roads. Outsloping of the roadway surface is preferred, except in cases where outsloping would increase sediment delivery to streams or where outsloping is unfeasible or unsafe. Route road drainage away from potentially unstable channels, fills, and hillslopes.

RF-6. Provide and maintain fish passage at all road crossings of existing and potential fish-bearing streams.

RF-7. Develop and implement a Transportation Management Plan that will meet the Fisheries/Watershed Objectives objectives. As a minimum, this plan shall include provisions for the following activities:

a. inspections and maintenance during storm events.

b. inspections and maintenance after storm events.

c. road operation and maintenance, giving high priority to identifying and correcting road drainage problems that contribute to degrading riparian resources.

d. traffic regulation during wet periods to prevent damage to riparian resources.

e. establish the purpose of each road by developing the Road Management Objective.

GRAZING MANAGEMENT

GM-1. Adjust grazing practices to eliminate impacts that retard or prevent attainment of Fisheries/Watershed Objectives objectives. If adjusting practices is not effective, eliminate grazing. BLM has completed consultation with regulatory agencies on their grazing allottments in the KRNCA and grazing practices have already been adjusted. If conditions change, such as a severe drought, further adjustments may be required in the future on order to meet Fisheries/Watershed Objectives objectives.

GM-2. No new livestock handling and/or management facilities will be located inside of Riparian Reserves. For existing livestock handling facilities inside the Riparian Reserve, ensure that Fisheries/Watershed Objectives objectives are met. Where these objectives cannot be met, require relocation or removal of such facilities.

GM-3. Limit livestock trailing, bedding, watering, loading, and other handling efforts to those areas and times that will ensure Fisheries/Watershed Objectives objectives are met.

RECREATION MANAGEMENT

RM-1. New recreational facilities within Riparian Reserves, including trails and dispersed sites, should be designed to complement Fisheries/Watershed objectives. Construction of these facilities should not prevent future attainment of these objectives. For existing recreation facilities within Riparian Reserves, evaluate and mitigate impact to ensure that these do not prevent, and to the extent practicable contribute to, attainment of Fisheries/Watershed Objectives objectives.

RM-2. Adjust dispersed and developed recreation practices that retard or prevent attainment of Fisheries/Watershed Objectives objectives. Where adjustment measures such as education, use limitations, traffic control devices, increased maintenance, relocation of facilities, and/or specific site closures are not effective, eliminate the practice or occupancy. As use increases, human waste may impact water quality in west slope streams requiring further education to redirect use. Wailaki, Nadelos and Honeydew Creek campgrounds are in Riparian Reserves and use needs to be focused on primary trails to protect streambanks from dispersed foot traffic.

RM-3. Wild and Scenic Rivers and Wilderness management plans will address attainment of Fisheries/Watershed Objectives objectives.

MINERALS MANAGEMENT

MM-1. Require a reclamation plan, approved Plan of Operations, and reclamation bond for all minerals operations that include Riparian Reserves. Such plans and bonds must address the costs of removing facilities, equipment, and materials; recontouring disturbed areas to near pre-mining topography; isolating and neutralizing or removing toxic or potentially toxic materials; salvage and replacement of topsoil; and seedbed preparation and revegetation to meet Fisheries/Watershed Objectives objectives.

MM-2. Locate structures, support facilities, and roads outside Riparian Reserves. Where no alternative to siting facilities in Riparian Reserves exists, locate them in a way compatible with Fisheries/Watershed Objectives objectives. Road construction will be kept to the minimum necessary for the approved mineral activity. Such roads will be constructed and maintained to meet roads management standards and to minimize damage to resources in the Riparian Reserve. When a road is no longer required for mineral or land management activities, it will be closed, obliterated, and stabilized.

MM-3. Prohibit solid and sanitary waste facilities in Riparian Reserves. If no alternative to locating mine waste (waste rock, spent ore, tailings) facilities in Riparian Reserves exists, and releases can be prevented, and stability can be ensured, then:

a. analyze the waste material using the best conventional sampling methods and analytic techniques to determine its chemical and physical stability characteristics.

b. locate and design the waste facilities using best conventional techniques to ensure mass stability and prevent the release of acid or toxic materials. If the best conventional technology is not sufficient to prevent such releases and ensure stability over the long term, prohibit such facilities in Riparian Reserves.

c. monitor waste and waste facilities after operations to ensure chemical and physical stability and to meet Fisheries/Watershed Objectives objectives.

d. reclaim waste facilities after operations to ensure chemical and physical stability and to meet Fisheries/Watershed Objectives objectives.

e. require reclamation bonds adequate to ensure long-term chemical and physical stability of mine waste facilities.

MM-4. For leasable minerals, prohibit surface occupancy within Riparian Reserves for oil, gas, and geothermal exploration and development activities where leases do not already exist. Where possible, adjust the operating plans of existing contracts to eliminate impacts that retard or prevent the attainment of Fisheries/Watershed Objectives objectives.

MM-5. Salable mineral activities such as sand and gravel mining and extraction within Riparian Reserves will occur only if Fisheries/Watershed Objectives objectives can be met.

MM-6. Include inspection and monitoring requirements in mineral plans, leases or permits. Evaluate the results of inspection and monitoring to effect the modification of mineral plans, leases and permits as needed to eliminate impacts that retard or prevent attainment of Fisheries/Watershed Objectives objectives.

FIRE/FUELS MANAGEMENT

FM-1. Design fuel treatment and fire suppression strategies, practices, and activities to meet Fisheries/Watershed Objectives objectives, and to minimize disturbance of riparian ground cover and vegetation. Strategies should recognize the role of fire in ecosystem function and identify those instances where fire suppression or fuels management activities could be damaging to long-term ecosystem function.

FM-2. Locate incident bases, camps, helibases, staging areas, helispots and other centers for incident activities outside Riparian Reserves. If the only suitable location for such activities is within the Riparian Reserve, an exemption may be granted following review and recommendation by a resource advisor. The advisor will prescribe the location, use conditions, and rehabilitation requirements. Use an interdisciplinary team to predetermine suitable incident base and helibase locations.

FM-3. Minimize delivery of chemical retardant, foam, or additives to surface waters. An exception may be warranted in situations where overriding immediate safety imperatives exist, or, following review and recommendation by a resource advisor, when an escape would cause more long-term damage.

FM-4. Design prescribed burn projects and prescriptions to contribute to attainment of Fisheries/Watershed Objectives objectives.

FM-5. Immediately establish an emergency team to develop a rehabilitation treatment plan needed to attain Fisheries/Watershed Objectives objectives whenever Riparian Reserves are significantly damaged by wildfire or a prescribed fire burning outside prescribed parameters.

Other - In Riparian Reserves, the goal of wildfire suppression is to limit the size of all fires. When watershed and/or landscape analysis, or province-level plans are completed and approved, some natural fires may be allowed to burn under prescribed conditions. Rapidly extinguishing smoldering coarse woody debris and duff should be considered to preserve these ecosystem elements. In Riparian Reserves, water drafting sites should be located and managed to minimize adverse effects on riparian habitat and water quality, as consistent with Fisheries/Watershed Objectives objectives.

LANDS

LH-1. Identify in-stream flows needed to maintain riparian resources, channel conditions, and fish passage. Investigate water rights applications and consider cumulative water withdrawals before issuing permits. Work with County on the Shelter Cove water drafting site on Bear Creek to manage water withdrawals to meet Fisheries/Watershed Objectives objectives.

LH-2. Tier 1 Key Watersheds: For hydroelectric and other surface water development proposals, require in-stream flows and habitat conditions that maintain or restore riparian resources, favorable channel conditions, and fish passage. Coordinate this process with the appropriate state agencies. During relicensing of hydroelectric projects, provide written and timely license conditions to the Federal Energy Regulatory Commission (FERC) that require flows and habitat conditions that maintain or restore riparian resources and channel integrity. Coordinate relicensing projects with the appropriate state agencies.

For all other watersheds: For hydroelectric and other surface water development proposals, give priority emphasis to in-stream flows and habitat conditions that maintain or restore riparian resources, favorable channel conditions, and fish passage. Coordinate this process with the appropriate state agencies. During relicensing of hydroelectric projects, provide written and timely license conditions to FERC that emphasize in-stream flows and habitat conditions that maintain or restore riparian resources and channel integrity. Coordinate relicensing projects with the appropriate state agencies.

LH-3. Locate new support facilities outside Riparian Reserves. For existing support facilities inside Riparian Reserves that are essential to proper management, provide recommendations to FERC that ensure Fisheries/Watershed Objectives objectives are met. Where these objectives cannot be met, provide recommendations to FERC that such support facilities should be relocated. Existing support facilities that must be located in the Riparian Reserves will be located, operated, and maintained with an emphasis to eliminate adverse effects that retard or prevent attainment of Fisheries/Watershed Objectives objectives.

LH-4. For activities other than surface water developments, issue leases, permits, rights-of-way, and easements to avoid adverse effects that retard or prevent attainment of Fisheries/Watershed Objectives objectives. Adjust existing leases, permits, rights-of-way, and easements to eliminate adverse effects that retard or prevent the attainment of Fisheries/Watershed Objectives objectives. If adjustments are not

effective, eliminate the activity. Priority for modifying existing leases, permits, rights-of-way and easements will be based on the actual or potential impact and the ecological value of the riparian resources affected.

LH-5. Use land acquisition, exchange, and conservation easements to meet Fisheries/Watershed Objectives objectives and facilitate restoration of fish stocks and other species at risk of extinction. Much of this work has been completed for the KRNCA such that the west slope of the KRNCA would be the next priority.

GENERAL RIPARIAN AREA MANAGEMENT

RA-1. Identify and attempt to secure in-stream flows needed to maintain riparian resources, channel conditions, and aquatic habitat.

RA-2 Fell trees in Riparian Reserves when they pose a safety risk. Keep felled trees on-site when needed to meet coarse woody debris objectives.

RA-3. Herbicides, insecticides, and other toxicants, and other chemicals shall be applied only in a manner that avoids impacts that retard or prevent attainment of Fisheries/Watershed Objectives objectives.

RA-4. Locate water drafting sites to minimize adverse effects on stream channel stability, sedimentation, and in-stream flows needed to maintain riparian resources, channel conditions, and fish habitat. Drafting methods will follow NOAA Fisheries specifications (NMFS 1995), including the following: portable pumps will have screened intakes; streams will not be dewatered as a result of water drafting; and drafting will not reduce stream flows by more than 10%, measured at the first point of anadromy downstream of the drafting site.

WATERSHED AND HABITAT RESTORATION

WR-1. Design and implement watershed restoration projects in a manner that promotes long-term ecological integrity of ecosystems, conserves the genetic integrity of native species, and attains Fisheries/Watershed Objectives objectives.

WR-2. Cooperate with federal, state, local, and tribal agencies, and private landowners to develop watershed-based Coordinated Resource Management Plans or other cooperative agreements to meet Fisheries/Watershed Objectives objectives.

WR-3. Do not use mitigation or planned restoration as a substitute for preventing habitat degradation.

WR-4 Consider instream enhancement only when upland erosion problems have been addressed.

FISH AND WILDLIFE MANAGEMENT

FW-1. Design and implement fish and wildlife habitat restoration and enhancement activities in a manner that contributes to attainment of Fisheries/Watershed Objectives objectives.

FW-2. Design, construct and operate fish and wildlife interpretive and other user-enhancement facilities in a manner that does not retard or prevent attainment of Fisheries/Watershed Objectives objectives. For existing fish and wildlife interpretative and other user-enhancement facilities inside Riparian Reserves, ensure that Fisheries/Watershed Objectives objectives are met. Where Fisheries/Watershed Objectives objectives cannot be met, relocate or close such facilities.

FW-3. Cooperate with federal, tribal, and state wildlife management agencies to identify and eliminate wild ungulate impacts that are inconsistent with attainment of Fisheries/Watershed Objectives objectives. Consider reintroduction of Elk to the KRNCA.

FW-4. Cooperate with federal, tribal, and state fish management agencies to identify and eliminate impacts associated with habitat manipulation, fish stocking, harvest and poaching that threaten the continued existence and distribution of native fish stocks occurring on federal lands. Increase public education by installing signs at Lost Coast trailhead.

RESEARCH

RS-1. A variety of research activities may be ongoing and proposed in Key Watersheds and Riparian Reserves. These activities must be analyzed to ensure that significant risk to the watershed values does not exist. If significant risk is present and cannot be mitigated, study sites must be relocated. Some activities not otherwise consistent with the objectives may be appropriate, particularly if the activities will test critical assumptions of these standards and guidelines; will produce results important for establishing or accelerating vegetation and structural characteristics for maintaining or restoring aquatic and riparian ecosystems; or the activities represent continuation of long-term research. These activities should be considered only if there are no equivalent opportunities outside of Key Watersheds and Riparian Reserves. Continue cooperative research efforts with fisheries biologists at Humboldt State University.

RS-2. Current, funded, agency-approved research, which meets the above criteria, is assumed to continue if analysis ensures that a significant risk to Fisheries/Watershed Objectives objectives does not exist. Research Stations and other Forest Service and BLM units will, within 180 days of the signing of the Record of Decision adopting these standards and guidelines, submit a brief project summary to the Regional Ecosystem Office of ongoing research projects that are potentially inconsistent with other standards and guidelines but are expected to continue under the above research exception. The Regional Ecosystem Office may choose to more formally review specific projects, and may recommend to the Regional Interagency Executive Committee modification, up to and including cancellation, of those projects having an unacceptable risk to Key Watersheds and Riparian Reserves. Risk will be considered within the context of the Fisheries/Watershed Objectives objectives.

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